Special Report

OF

DR. J. D. HOPKINS.

SPECIAL REPORT

—OF—

J. D. Hopkins, Territorial Veterinarian,

—TO—

GOV. THOS. MOONLIGHT.

SEPTEMBER 12, 1887.

WITH PAPER ON GLANDERS AND FARCY.

WYOMING TERRITORY.

CHEYENNE, WYO.:
NORTHWESTERN LIVE STOCK JOURNAL PUBLISHING CO.

THE REPORT.

CHEYENNE, WYO., SEPT. 12, 1887.

HON. THOS. MOONLIGHT,
Governor of Wyoming:

SIR:—I received your telegram at Chadron, Nebraska, on the 18th of August, directing me to proceed to Illinois, and investigate the reports of disease said to prevail among the horses near Bloomington, Illinois, and I herewith submit the following report for your consideration:

On arriving in Chicago I called on the live stock commissioners of Illinois, who furnished me with a letter of introduction to Dr. Williams, of Bloomington, the verterinarian in charge of the infected animals in McLean and De Witt counties, also directing him to give me every facility in the examination of sick horses. This gentleman gave me much valuable information in regard to the spread of Maladie Du Coit among the horses of DeWitt county.

Dr. Williams has by order of the live stock commission, quarantined nearly 200 mares and nine stallions, suffering with or exposed to the contagion. About forty mares and two stallions have died of the disease.

The mares are generally large draft animals of no pronounced breed, owned by farmers in bunches of from two to six head, and in addition to their usual farm work are expected to carry a foal each year; while the stallions are all thoroughbred Norman Percheron stock imported from France. These stallions are kept by the importers for sale, and advertised to stand for service during the breeding season at prominent towns.

This strange disease first attracted attention during the breeding season of 1885, and as the cool weather approached it seemed to die out; in 1886 it again appeared, and Mr. C. C. Culbertson, an importer of Percheron stallions, having some animals affected with the disease, and many of his neighbors' mares becoming infected through his horses, and other stallions standing in the county, called a number of veterinarians to investigate.

This disease presented strange characteristics to the medical gentlemen called in, and it was only after considerable study into its peculiarities, and a large number of cases developing the same symptoms, that a diagnosis was made. Dr. Williams has demonstrated that the disease is Maladie Du Coit, another of the plagues of Asia which has been known in the different countries of Europe for the past century, and is spread from one country to another through the importation of animals from infected localities.

It is a matter of fact, that many prominent veterinarians have repeatedly warned the people and legislators of the value and necessity of the enforcement of sanitary laws compelling inspection of all importations of horses from countries where Maladie Du Coit prevails; now this dread plague has gained a foothold among the horses of one of our best horse growing states, and the probability is that the disease will be widely spread.

I am informed by creditable horsemen of DeWitt county that previous to a knowledge of the character of the disease, that stallions have been shipped to different parts of the country, and that since the peculiarities of the malady are known information has been sent to such parties so that the infection may be limited.

The origin of Maladie Du Coit in Illinois is unknown; it has existed so long that it is impossible to tell what importation brought it into the country. At present the disease is believed to be confined to Percheron stallions and the mares of DeWitt county. Wide publicity has been given to the existence of Maladie Du Coit in this country, and it is to be hoped that should any venereal disease develop among the breeding horses in any state, that the owners will at once quarantine the animals until an investigation by competent veterinarians.

Maladie Du Coit could only gain an entrance into the United States through the importation of an animal (stallion or mare) actually suffering with the disease, from an infected country. The live stock commission of Illinois are making every effort to discover what animal introduced the disease. But the lapse of time since its introduction, the constant change in ownership of horses and, perhaps, the interested motives of those engaged in horse traffic, renders it difficult to place the responsibility where it belongs.

There is a black Percheron stallion at Clinton, Ill., imported in 1882, and at present owned by Joseph Fisher. Last year this horse was suffering with Maladie Du Coit and was bought by his present owner for $300. Mr. Fisher has witnessed this disease in the "old country" and under his treatment the horse apparently convalesced, and this spring was advertised to stand for service,

and was actually serving mares, although still suffering with the disease, when by order of the live stock commission he was compelled to retire his horse into quarantine. This animal when imported was branded **D N** on the left side of the neck, and is believed by many to be the animal that brought the disease into this country.

It is not the custom in Illinois to brand their imported stallions, and we know that in Austria and Prussia (Flemings Sanitary Science Vol. 2) it is the custom to brand all stallions affected with Maladie Du Coit on the neck so as to prevent their use as sires. If the Fisher stallion brought the disease from Europe in 1882, why is it that the disease received no attention until 1885?

A careful examination into the peculiarities of Maladie Du Coit shows that a horse suffering with this disease may make an apparent recovery, and on returning to the stud have a recurrence of the malady brought on by excessive copulation; this may explain the lapse of time.

It is also claimed by some creditable horsemen of DeWitt county, Ill., that the plague was brought from Texas. It appears that in 1885, a large number of mares were brought from Texas and stinted to the Percheron horses, and shortly afterwards the disease appeared among the stallions who served the mares. After much inquiring into this rumor I am obliged to state that I don't believe it has any foundation in fact.

The first accounts we have in veterinary literature of Maladie Du Coit comes from Prussia in 1796, although it is believed to have existed in southern Russia before that period.

In 1815, Woltersdorf observed it in Austria, and Haveman, director of the veterinary school of Hanover, observed it there in 1816. From this time we have accounts of its spread over the different countries of Europe. In 1847 it was reported in Algeria, by the French veterinarian Signol, and who described it as an "Epizootic Paraplegia." He also mentions that the Arabs had long been acquainted with it. In 1851, the disease was imported into France and spread to thirty-one communes around Tarbes. It reappeared in this district again in 1856, and Dr. Trelut traced the origin of the disease in France to the importation of a stallion from Syria, where the disease prevailed. No records appear of the existence of this disease in Great Britain, Spain, Denmark or Italy.

During the past century many eminent pathologists of Europe have devoted considerable time to a study of Maladie Du Coit as it appears among the horses there, and they have demonstrated its contagious character and the manner of its spread. The French have named the disease "Maladie Du Coit"—the Arabs call it "El-Dourine."

This disease is peculiar to solipeds—equine and asinine—it is contagious and is transmitted in the act of copulation. The disease presents both local symptoms, affecting the generative organs, and those of a general character affecting more or less every organ of the body, producing a state of marasmus and great emaciation. It affects the nerves to a marked degree, ending in paralysis of the posterior extremities prior to death.

Some authorities have imagined it to be allied to human syphilis, basing their supposition on the course of the local symptoms, some of the pathological alterations and their serious character. Recent experiments by able investigators have failed to reproduce human syphilis by inoculation in the mare. Therefore all stories about the transmission of syphilis from man to the mare may be dismissed, as they have no foundation.

Although able pathologists in Europe have been for years engaged in the study of Maladie Du Coit, it is to be regretted that our knowledge of this disease is very limited; the primary cause or causes are as obscure as the peculiar form of the disease. Numberless hypothesis have been advanced by scientific men to account for the origin of Maladie Du Coit, but as yet the problem is unsolved. Prof. Roll observing that the malady is only witnessed among breeding animals, and is propagated by coition, states that it is not yet positively ascertained whether it is primarily developed in the mare or horse or in both, but that the latter is the most likely, and it is possible that an abuse of the genital functions of the male and the existence of a vaginal catarrh in the female are its occasional causes. It is true that in admitting this mode of production, we cannot explain the specific action of the secretion observed in this disease, and which, according to certain authors, ought to be considered as analogous to that produced in human syphilis.

Strauss attributed its evolution to the crossing of breeds, and the artificial manner in which horses and mares were reared. Rodloff gives, as a general cause an atmospherical epizootic constitution which gradually modifies the animal economy until the evolution of disease is possible. He believed that a hereditary tendency, a catarrhal condition, cutaneous eruptions betraying a lymphatic dyscrasy are all so many predisposing causes. The determining causes in the two sexes he imagined to be too frequent copulation, causing local superexcitation of the generative organs.

Lafosse, commenting on the influence of cross breeding, mixture of races, migration, change of climate and the mingling of eastern blood, concludes that all these and particularly the latter, have changed the constitution of the horse, so far as its diseases

are concerned, and have prepared it for the evolution of new and unknown maladies. Daumas mentions that the Arabs believed that the female ass contracts the disease through an abominable offence committed upon it by the Arabs suffering from syphilis, and who fancy that this odious practice will cure them.

All these theories have been disproved by actual experience of breeders of all classes of domestic animals, and experiments of able pathologists, and it leaves the origin of the disease involved in mystery. But we do know that if horses are imported from infected countries, sooner or later the disease will appear in healthy herds, where the malady was unknown until the introduction of diseased animals; hence the great value and necessity of the enforcement of sanitary laws in countries where the disease is unknown, and permitting traffic with infected localities only under the most stringent rules and regulations, imposing a most rigid inspection by competent veterinarians.

Maladie Du Coit affects stallions and mares in two forms, viz: benignant and malignant.

In the mare the general symptoms in the benign form are often so trivial that they do not attract attention, usually appearing in from twenty-four hours to ten days, after being put to the stallion. The animal is restless and stamps with the hind feet, whisks the tail from side to side, frequently stretches to micturate, but only voids a small quantity of urine at each attempt. It rubs the vulva with the root of the tail, and, if able to get near a wall, appears delighted to affriction this region against it; the clitoris is frequently erected, and there are all the signs of œstrum, so that the commencement of the disease is often mistaken for this condition—owing to its persistence the mare is frequently sent to the stallion again. This unusual excitement of the genital organs should arouse suspicion, if the disease is known in the country.

The local symptoms consist, at first in a heightened redness of the vaginal mucous membrane and tumefaction of the labia of the vulva, with the escape of a muco-purulent discharge therefrom. This discharge is at the beginning slight and serous, and merely renders the parts sticky; but it soon increases, becomes thick, viscid, and white, yellow, or yellow-reddish in tint, concreting around the vaginal orifice, and soiling the perinerum and tail.

The mucous membrane of the vagina becomes of a deep or reddish-voilet hue, and it and the vulva become the seat of œdematous infiltration, doughy and hard, which not only extends to the labia, but descends more or less in the perineal region. At this time there appears on the mucous membrane of the vagina,

vulva, and clitoris, small miliary pustules, which soon become little superficial ulcers, no more than one fifth of an inch in diameter. These ulcers are not long in cicatrizing; but they are replaced by others which, like the first crop, are more numerous in the fossa navicularis, on the clitoris, and near the margin of the vulva. These symptoms are intermittent; disappearing for some days, and again manifesting themselves; in the majority of cases becoming milder, until they finally disappear.

In the malignant form in the mare we have the same symptoms as in the benign; uterine excitement, slight swelling of the lips of the vulva, redness of the mucous membrane, discharge, etc. After three or four weeks the symptoms become more accused; the tumefaction of the vulva increases and diminishes by turns; sometimes it remains limited to the labia and inferior commissure; at other times it descends in the perineal region to the mammæ; and at other times again, it is nuelateral, and gives a deformed appearance to the vulva.

The mucous membrane is red and swollen, with more or less deep colored patches and conspicuous wrinkles, and the miliary pustules and cicatrices already described; while the temperature of the vagina is increased.

On the external surface of the labia, the perineum, and the inner face of the thighs, there are often ecthymatous lenticular pustules, which are succeeded by small circular sores that readily heal.

There is vaginal catarrh, the matter being viscid, glutinous, dirty white in appearance, and frequently possessing a strong odor. This discharge is increased after COITUS, during fits of coughing, exercise, and the emission of urine, which it either precedes, accompanies, or follows. It adheres to the hair, soils the tail, perineum, inner surface of the thighs and hocks, and, in drying, forms yellow or brownish crusts.

At a later period it is endowed with irritating properties, due to the presence of a free acid, and causes depilation of the coat at those parts it comes in contact with; then it changes its character, becoming thick, purulent, of a yellow or reddish color, and gives off a strong disagreeable smell.

The mucous membrane of the vagina and the vulva is also modified, and assumes a marbled appearance; the labia open, and the hypertrophied clitoris appears in the inferior commissure, all having a lardaceous consistency; while the vaginal orifice, deformed and gaping, resembles the anus of an old horse.

Mares that have conceived usually abort towards the third or fourth month of gestation; though this action does not stay the progress of the malady. Should the full term of pregnancy be

reached, the foal produced is dwarfed, badly formed, and either dead at birth or dies soon afterwards. The exceptions to this rule are rare.

The emission of urine gives rise to pruritis, and occasions uterine excitement at the commencement of the malady; as the latter progresses the urine becomes thicker and viscid, and charged with salts, which are deposited on the labia of the vulva, in the navicular fossa, and on the clitoris.

These local symptoms are not present in every case with the same intensity, the individual differences being often very great; it sometimes even happens that they are scarcely noticeable. The general symptoms appear in the following sequence; emaciation, lameness, nervous derangement, paralysis and marasmus.

If recovery takes place, it is only in those cases in which the disease is little developed; then the morbid phenomena diminish, the wasting stops, the vigor returns, and the other symptoms quite, or nearly disappear; though these often remain paralysis of the labia of the vulva, with hypertrophy of the vaginal mucous membrane.

The recovery, which is rare, may take place after seven, eight or ten months, or even longer. Lafosse, in his experiments, saw a case recover after nineteen months' continuance.

The duration of the malignant form is extremely variable. Death has occurred in five months, a year, and even two years; but frequently before this interval has elapsed the animals are killed, or intercurrent maladies hasten the disease to a fatal termination.

Inflammation of the mammæ is frequent, terminating in suppuration; also circumscribed inflammations of the skin. In weak constitutioned animals there is often œdema of the abdomen, perineum, and extremities. A floeculent discharge from the nostrils may also ensue, with tumefaction of the submaxillary glands, when the malady has continued for a considerable time, circular, flattened, but well defined swellings, one to two inches in diameter, may occur on the neck, shoulders, chest, abdomen or croup. These swellings persist for one or two weeks and gradually disappear, while others are developed elsewhere; their margin is the last to subside.

STALLIONS.

In the benignant form in stallions the symptoms of the disease do not appear to be so marked as in the mare, and not unfrequently several weeks pass away without any indication of its existence being manifested; at other times it appears in a few days after COITUS, as an indolent, œdematous, but intermittent

inflammation of the prepuce; and in some cases there is œdema with collapsus of the penis.

The disease may become aggravated and malignant, as in the mare.

In the commencement of the malignant form of this malady in stallions, the symptoms are sometimes so trifling that they are likely to pass unperceived, especially if the disease is unknown in the country.

Its primary manifestations are uncertain; sometimes it appears early, at other times there is a long lapse before its presence is ascertained; and again, it may remain latent, and only develope itself after the excitement of coition.

One of the first symptoms is swelling of the prepuce, which increases in volume; the infiltration extends behind to the scrotum, and is limited in front to the extremity of the sheath, where it forms a semi-circular ring; though it may spread beneath the abdomen to the sternum, the skin being infiltrated and thickened, and on the sheath smooth and shining, while the swelling itself is doughy and indolent. This is frequently the only symptom visible for a long time; and stallions have had it for eight, ten, and twelve months before other symptoms were exhibited.

After a certain time these local symptoms are accompanied by others of a general character. There is dullness, pawing, and loss of condition, though the appetite is unimpaired

In some cases the testicles remain healthy; in others they are larger, pendant, and betray more or less morbid sensibility.

In order to examine the penis, a mare should be presented to the stallion, which, at the commencement of the affection, has lost none of his ardor; though, at a later period, this decreases until copulation can scarcely be effected. The penis, when completely erected, in the majority of cases offers nothing abnormal; sometimes the mucous membrane is redder, especially at the transverse ridges, and it may even bleed at certain points; but this is not a distinctive feature of the disease, being frequent with stallions which are much used. At other times the penis has a faint bluish or violet tint, which forms the basis for a kind of a large ecchymotic spot, generally elliptical in shape, varying in diameter from one-third of an inch to an inch, and deeper in color than the other portions of the mucous membrane.

These spots are neither above nor below the general level.

Other more conspicuous and more numerous spots are observed nearer the glans; these have a yellowish-white hue, which contrasts strikingly with the color of the mucous membrane, and their diameter varies from one-thirtieth to one-sixth of an inch;

their border is well defined, though not raised, and altogether they look like the cicatrices of minute superficial ulcers. It is probable that they are the remains of vesicles which have been destroyed. The organ is often infiltrated, and its head is so increased in size that copulation is difficult or even impossible.

Some observers have noticed atrophy of the penis and testicles.

When the stallion has been put to the mare, it is remarked that after the genital excitement has passed off the penis is not retracted within the prepuce as usual, but remains in a state of semi-erection for hours; and even after this has passed it hangs beyond the prepuce, soft and wrinkled, to about the extent of an inch; usually micturation is frequent, and it sometimes requires a long preparation, the efforts appearing to be painful to the horse. The animal stretches, separates the posterior limbs, while the penis is protruded and pendant, and these maneuvers may be repeated several times before any urine is passed; this takes place by a little uninterrupted jet, the thickness of a quill, and the fluid is thick, yellow, and viscid like synovia.

It has been found to contain albumen. After micturation the horse paws and appears uneasy, as if the urine irritated the urethra.

The disease may remain for a long period limited to the swelling of the sheath. After a time it is perceived that the animal is not so vigorous as usual; rests more frequently and does not evince much ardor when mares are exhibited; as yet the appetite is good, but there is loss of condition, and also gradual emaciation, which is scarcely noticeable until after several weeks or months; the coat looks dry and the skin tight and inelastic, and the slightest pressure on the loins causes the horse to evince symptoms of tenderness. Soon afterwards difficulty is observed in walking; there is swaying of the croup, and apparent weakness of the posterior extremities, standing is fatiguing, and the hind limbs are alternately rested twenty or thirty times a minute; still later, when trotted the animal goes as if its loins were affected; the croup swings from side to side, and it, as well as the hocks, is much flexed when the pace is suddenly checked.

There is a marked lameness of the hind or one of the fore limbs; most frequently it is confined to the right hind leg. The hip joints are painful, and when the hind feet come to the ground they are jerked up again, as if the horse was affected with string-halt. At times the weakness is so great that the animal falls to the ground like an inert mass.

These symptoms are intermittent. A horse that goes lame today may not be lame two or three weeks hence; then the lame-

ness will again appear, and diminish or increase until the feebleness terminates in death.

There is tumefaction of the submaxillary lymphatic glands, and those in the inguinal region, and a discharge from one or both nostrils, while the eyes are lachrymose. At an advanced stage of this disease the appetite is variable and capricious; the food is eaten slowly, and the hay is often held listlessly between the lips, as if the animal forgot it was eating, or the jaws were fatigued.

In some cases a peculiar symptom is remarked; this consists in excessive pruritis confined to the posterior extremities, and which persists until death ensues. The stallion gnaws itself about the pasterns and feet so continuously and severely as to produce serious wounds. At other times it seizes its manger or anything else accessible with such savageness that the teeth are sometimes broken in their sockets. In other cases very peculiar nervous symptoms, epileptiform in their character, appear. At the approach of a mare the stallion will be seized with a kind of spasmodic trembling; the muscles of the neck stand out in strong relief; the head is extended, and shakes convulsively; the lower jaw moves from side to side; the eyelids, widely dilated, expose a large surface of the eyes, the schlerotica of which appears of a bright yellow color, while the organs themselves roll about in their orbits in a strange manner; and the respiration is snorting and excited, the nostrils being widely expanded. These singular phenomena persist until the animal has gained sufficient energy to attempt copulation. At a later period the sight of a mare does not occasion more than a nervous trembling, which is also produced by the ingestion of cold water.

The voice diminishes in sonorousness and strength, and can only be heard a short distance away, sounding husky and nasal.

The diagnosis of the disease is more difficult in the stallion than in the mare, unless the local disturbance is accompanied by the secondary nervous symptoms already noted. Observation of the consequences resulting from coition, however, soon testifies as to the soundness of the animal; for if it has a chancre in the urethra it will transmit the disease to the mares it has been put to, though apparently in good health.

As a rule the progress of the disease is slow, and its termination most frequently fatal, though the result cannot always be predicted with certainty. With some animals which are apparently much advanced in the malady—even as far as the paralytic stage—recovery will at times occur; while with others which are evidently only slightly affected, it progresses gradually to a fatal termination, in spite of all treatment.

It is liable to intermissions and remissions or paroxysms. The swelling of the prepuce may be the only symptom for a long time, and this should arouse suspicion, especially if the horse has come from an infected locality; and particularly if there is weakness of the hind quarters, lameness, knuckling over at the fetlocks, and loss of condition, without impairment of the appetite.

The disease may continue from three months to three, four or even five years. The mortality varies from forty to seventy per cent., according to the constitution of the animal, condition, manner of keeping and climate of the country. The mortality is greater among stallions than mares.

The contagium of this disease is "fixed," and from what is at present known of it is only contained in the secretions of the genital mucous membrane (that lining the urethra of the stallion and the vagina of the mare), and in the vesicles or ulcers.

It does not exist in the blood. It is inoculable, and at times very potent; but it does not appear to have any action on other than equine and asinine species.

The contagium obtains access through the generative organs, and we have no evidence to show that it may be received in any other channel.

It is transmitted from the stallion to the mare, or vice versa, in the act of copulation. The highest bred animals are the most susceptible.

The duration of the latent period does not appear to be fully determined. Maresh says it varies from eight days to two months. Haubner gives it an incubative stage of three to six days in the benignant form. The same authority states that the malignant form may be longer than two months in appearing. Viardot gives it fifteen days to two months. Venereal excitement appears to diminish its incubation; as it also tends to induce its more rapid development when it has appeared. Owing to the long stage of incubation and duration of the malady, it may be carried to the more distant regions by one infected animal.

From the figures at present accessible it would appear that of the animals exposed to the infection about one-third become diseased. Cohabitation, without actual contact, will not produce the malady.

A study of the above disease will repay those interested in horse breeding and I recommend to their consideration Flemings' Sanitary Science, Williams' Principles of Veterinary Medicine and Liautard's translation from Zundel, works which I have drawn upon in describing the symptoms of Maladie Du Coit. These books contain an exhaustive description of the symptoms,

pathology, treatment, post mortem lesions and sanitary regulations necessary to control or stamp out the contagion.

As this outbreak among the horses in Illinois is the first appearance of Maladie Du Coit on this side of the At'antic ocean, veterinarians called in to advise did not at first recognize the disease; it was only when the malady became widespread, and in the number infected presenting all the different characteristics, that its peculiar nature became understood. This delay in diagnosis has been the cause of much loss to horse breeders in Illinois, which might have been, in part at least, avoided, if the owners of the suffering animals had early reported to the sanitary authorities of the state.

In the preventive of the spread of Maladie Du Coit from Illinois much, indeed everything, will depend on the intelligence and experience of the breeder, whose interests will not allow him to purchase breeding stock in an infected locality, because of the grave liability of carrying a pestilence to his home herd. Veterinary inspection will fail to detect the disease in the benign form, and the BENIGN FORM IS JUST AS CONTAGIOUS AS THE MALIGNANT.

Legislation should be had in every state, giving the sanitary authorities AMPLE power and means to quarantine all suspected animals, and to KILL all that develop the disease; to castrate all infected stallions, and thus prevent their use forever as sires; as the disease has invaded our country through a neglect of the enforcement of sanitary laws, I am of the opinion that the government should indemnify all owners for animals destroyed because of this disease. The state in granting an indemnity for horses afflicted with Maladie Du Coit insures the prosperity of the people by making it to the interest of all breeders to report the existence of the disease to the sanitary authorities, who may at once take such action as will prevent its spread. In a community devoted to the horse-growing industry this disease is much to be dreaded, because of its peculiar nature; the manner of its spread; the fact that it resists remedial agents; its mortality; and the ease with which it is transported from herd to herd.

There is no doubt but that the sanitary authorities of Illinois will do all that is possible under their laws to prevent an extension of this plague from its present locality. But it seems to me impossible for them to hold in quarantine the two hundred mares and nine stallions affected with this disease for a term of THREE YEARS; and it must be remembered that these animals are owned by about fifty different farmers, widely separated.

It is not reasonable to suppose that these quarantined breeders will submit to the official supervision of their herds for such a long period; and in this country with our present sanitary

laws it is folly to imagine that the live stock commissioners of Illinois will be able to successfully maintain a three years' quarantine. While Maladie Du Coit is confined to the horses of DeWitt county, Ill., it would be a profitable investment for the state to pay for and slaughter every infected animal. The expense would be trifling in comparison with the immense capital invested in breeding horses.

Already the confidence in the horse traffic (breeding stock) is shaken, and the people of Illinois who by their foresight and energy have created a large trade in Norman-Percheron stock, and have thus added to the material wealth of the country, must lose their business or remove to more favored and healthy locations.

If Wyoming buyers of breeding stock (horses or mares) would preserve the prosperity and integrity of their herds they MUST NOT make their purchases in a district where Maladie Du Coit prevails.

Respectfully submitted,

JAS. D. HOPKINS,
Territorial Veterinarian.

GLANDERS AND FARCY.

EXTRACTS FROM DR. HOPKINS' REPORT TO THE WYOMING STOCK GROWERS ASSOCIATION IN 1886.

Equine glanders and farcy are probably the most widely diffused of all the plagues which afflict our domestic animals. This disease may be found in almost every county in the United States. It is a disease of the temperate climate, rare in hot and very cold climates. It is unknown in India. It was unknown in Mexico until it was introduced in 1847 by the horses of the United States army. Great Britain and Europe suffer great loss from its ravages. Glanders and farcy are names employed to distinguish two forms of the same disease, or in other words they are two diseases essentially identical, however dissimilar their external manifestations. The term "glanders" is applied to the disease when the nasal or respiratory mucous membrane and adjacent lymphatic glands as well as the lungs and other organs are involved, and "farcy" when the malady is localized in the skin and subcutaneous connective tissue, and secondary in the lymphatic vessels and glands. These two forms of the disease may be observed in the same animal singly, simultaneously, or successively, and the contagion of glanders may produce farcy by transmission from a diseased to a healthy animal. Farcy may produce glanders. This very important fact has been demonstrated by experiments, and is conclusive proof that glanders and farcy are one and the same disease, although affecting different organs of the animal. Glanders and farcy is a malignant, contagious and fatal disease, due to the introduction into the animal economy of an animal poison which infects the whole system, and shows its specific effects more especially upon the schneiderian mucous membrane, the lungs, and upon the lymphatic glands and

ducts. Eminent authors claim that this disease may arise spontaneously in the horse, ass and mule, and cite many instances to verify their statements, in which it is difficult to otherwise account for the outbreaks. Still other equally eminent pathologists maintain that it is spread only by inoculation and contagion. I must confess that in my experience of twenty-five years I have never seen a case of glanders arise spontaneously, from any condition of keeping, overwork or debilitating disease. It is a well known fact, that if a horse suffering with glanders is kept in a closed stable with other horses, who may be compelled through defective ventilation to inhale the expired air, loaded with disease germs from the affected animal, that the malady will spread to all susceptible animals. The most common mode of its propagation is inoculation, either through the virus gaining access to the blood, by means of impregnated food, or by the virus coming in contact with a flesh wound and being absorbed into the system. Glanders and farcy are each capable of assuming two states—acute or chronic—depending on the virulence of the contagion, or upon the general condition of the animals and other circumstances; for instance if the exposed animals are in good condition, well fed and housed, and not subject to extraordinary hardships, they will resist the contagion and may not present any symptoms of the disease for a year, or until the vitality and strength are lowered by unfavorable circumstances. But in cases of horses debilitated by disease, starvation or over-work, they readily fall victims to glanders, when exposed to the contagion, the disease being developed within five days after the virus has gained an entrance into their systems. Chronic glanders is the form most frequently met with in the horse. It may continue for months and even years, and the animal exhibit but little constitutional disturbance and be able to do a fair amount of work as long as well fed and cared for. The symptoms of chronic glanders are local and general. The local symptoms are the nasal discharge, ulceration of the schneiderian membrane, and enlargement of the submaxillary gland (under the jaw) on the side corresponding to the nostril from whence the discharge issues. The disease usually commences with the signs of an ordinary acute catarrh of the nasal passages, the discharge flowing rrom one or both nostrils, though most frequently the former. This discharge is at first transparent, and at a later stage opaque and viscid, collecting around the margin of the nostril, flowing slowly, or snorted out in lumpy masses. The character of the discharge is noteworthy. It is glutinous and adheres to the skin and hair around the nostril, forming soft, greasy-feeling crusts of a brown or black color. As a rule the discharge is inodorous, or has only a faint sickly smell;

at times, however, it is very fetid when it has been accumulated in the sinuses for some time, putrifying from contact with the air before being discharged. As the disease advances the discharge becomes purulent, with a slightly greenish tint which has long been looked upon as characteristic of the disease and which does not disappear until the malady is of very long duration, and the discharge is abundant. The ulcerations of the schneiderian membrane of the nose are of two kinds, one kind consisting of veritable chancres, and the other of simple destruction of the epithelium covering the membrane. These chancres are at first discovered as little infiltrated or resisting points about the size of a millet or a pea, and easily detected by passing the finger over the membrane. In two or three days these nodosities liquify, the epithelium covering them is detached, leaving a small concave depression. The chancre once formed continues to suppurate, and the matter from it, sometimes considerable in quantity, not infrequently coagulates, forming a yellow, but slightly attached crust over it. The ulcerative process continues to extend itself incessantly at the margin until it attains a good size. A number of these chancres, if they happen to be near each other, may even coalesce and form a large ulcer, variable in shape with festooned borders. Sometimes, if the horse is well fed and not exposed to any hardships or debilitating influence, the destructive ulceration of the chancre will be arrested and the chancre may cicatrize; it then contracts, and is filled up by granulations, which finally become covered with epithelium, the whole process resulting in the production of a fibrous circular or stellate patch whose white color is in striking contrast with that of the other portions of the membrane. When the ulcer has cicatrized in this manner, the tubercules still remain in the lungs and are never absorbed, and the entire body retains the virulent properties of the disease, which although latent, will again become manifest at a future period by a second crop of chancres.

Another characteristic symptom of glanders consists in the alteration of the submaxillary glands. One or both glands may be affected, according as one or both nostrils discharge and have ulcers. If only one nasal cavity is affected, then the gland on the corresponding side is involved. The peculiarities of this alteration are as follows: The gland is elevated in the intermaxillary space, (under the jaws), and its volume is increased in size from that of a chestnut to that of a small apple. It is most frequently elongated in shape from behind to before, though occasionally it is round. At first it is soft and doughy, painful on manipulation, but in a few days this condition disappears and it becomes hard and indurated, and fixed to the subjacent organs and jawbone. It

is indolent, never softens to suppurate, and rarely any kind of treatment, except excision, will remove the hard, resisting, insensible mass it forms. The general symptoms of chronic glanders are in the majority of cases obscure at first. There is a certain amount of fever, debility and unthriftiness with diminished appetite and loss of flesh. But when the local symptoms just described commence to manifest themselves there is an apparent recovery—the appetite is regained, the animal becomes lively and improves in condition. This deceptive state may continue for some months and the horse is enabled to do considerable work. It is only when the disease is localized in the lungs, or when the malady is of long standing and the animal is subject to debilitating influences that the horse continues to look ill and unthrifty. Though the character of the nasal discharge, the ulceration of the schneiderian membrane and the induration of the intermaxillary glands may be justly designated distinctive indications of glanders, yet it is by no means rare to meet with instances of what is termed "internal glanders," in which one or all of these symptoms are absent. In this form, after death, the lungs may be found filled with numerous gelatinous, caseous, or even calcified tubercules. Similar masses are also to be met with in the liver, spleen, bronchial and mesenteric glands. These cases are by far the most dangerous, as they offer no symptoms which might lead the expert to suspect the existence of glanders, and yet they readily infect healthy horses. Acute glanders presents all the characteristics described in the chronic form greatly intensified. The discharge from the nostrils becomes thick, viscid, mixed with fibro-albuminous flakes and streaked with blood. The appetite is lost and the animal emaciates rapidly. Death closes the scene in about fifteen days. Chronic glanders may become acute when the sufferer is exposed to any debilitating causes, such as overwork, starvation, inclement weather or the effects of other diseases. When an animal is inoculated with the virus of glanders, the disease may assume either the acute or chronic form, according to the virulence of the virus and condition of the horse. The mode of invasion in both acute and chronic forms of this disease is identical. Acute glanders is generally complicated before death with either farcy or lobular pneumonia.

ACUTE FARCY.

This form of the disease occurs through inoculation with the virus of glanders or farcy. The primary symptoms are fever, rigors, loss of appetite, emaciation and swelling of the extremities. When the swelling of the limbs diminishes, enlarged lymphatic glands and ducts will then be detected forming "buds and cords." The

buds are due to inflammation of the glands and valves of the lymphatics. They suppurate, point and burst, giving exit to a purulent, oily material. In some instances farcy manifests by the formation of a single swelling, on the limb, below the hock or knee, which suppurates, points and bursts, and from which enlarged lymphatic vessels (cords) may after a time be traced. Other swellings form on various parts of the affected limb, connected with the first by cords, which ultimately suppurate and burst, presenting ragged-edged, unhealthy looking sores that discharge copiously. Another form in which farcy may appear is the "farcy tumor." They vary in size from a hen's egg to a man's fist, and are generally located on the haunches or croup. They never exhibit any tendency to ulcerate. Appearing suddenly, they are at first hard, a little painful on manipulation and always well defined. They do not extend, nor are they accompanied by pheripheral infiltration. They soften in a very rapid manner, though they have never been observed to open spontaneously. When punctured the discharge is thick, stringy, yellow and like oil. In chronic farcy, the local symptoms generally precede any apparent febrile disturbance, and consist of circumscribed inflammatory swellings, running along the course of the principal vessels without much accompanying engorgement of the surrounding tissue. The circumscribed elevations or "buds" are connected together by enlarged or "corded" lymphatic vessels, and wherever a valve is situated on the lymphatic ducts there a swelling or bud will appear. The buds are ranged in groups about the inner and outer aspects of the thigh, fore-arm, flank, neck and head. These buds suppurate and burst, discharging a characteristic oily, yellow pus which is at times streaked with blood. The sore does not heal readily, its margin being surrounded by a circle of induration that increases as ulceration progresses, making a bad looking farcy chancre. Occasionally farcy is confined to the cervical lymphatics. An examination of the neck along the course of the jugular vein will show the lymphatic duct swollen, hard and presenting irregular knots along its course. Suppuration seldom occurs, but the animal sooner or later develops glanders or farcy in some other part of the body. In the acute as in the chronic form of farcy, there are contingent symptoms which, though not present in every case, and therefore not in themselves characteristic, are important. These are acute inflammation of the joints, with great and intensely painful swellings around them, and inflammatory œdema of dependent parts, as the lower portions of the chest, head and limbs. In the horse glanders generally appears in the chronic form. In the ass and mule it is most frequently acute. Farcy, on the contrary, is

oftenest acute in the horse. The differential diagnosis of glanders, particularly in the chronic form, can only be fully established after ascertaining the existence of the three characteristic features which we have described as peculiar to the disease, but especially the presence of the ulcers in the nasal cavities. The ordinary maladies with which it might be confounded are nasal gleet or chronic catarrh, collections of matter in the sinuses, due to caries of either or all of the three last upper molars, matter in gutteral pouches, cancer of the bones of the face, and malignant or benignant strangles. Some of these diseases may resemble glanders to such an extent as to deceive an expert unless plenty of time is taken for observation. Therefore too much circumspection cannot be observed in doubtful cases, and although the three leading symptoms may be absent, or only one present, as for instance an intermittent discharge, it is very important to determine the exact nature of the malady.

The history of the case must be considered. The result of treatment while the horse is kept under observation will aid in diagnosing the disease, as a cure will in all probability be effected if glanders is not present. Inoculation should be resorted to in important cases to test the innocuousness or virulence of the discharge. The diagnosis of acute glanders is more easy, as it is accompanied by such serious and characteristic symptoms that a mistake can scarcely be made. To examine a horse for glanders place him in a stable facing an open door, cause an attendant to raise the animal's head so that the light will shine up the nostril. The examiner should stand a little one side of the front, and with his hand dilate the nostril, so that the whole inside of the nasal cavity may be exposed to view. Passing the finger over the schneiderian membrane will detect any nodosity, when no ulcers may be seen. Horses presenting suspicious symptoms of glanders or farcy should be carefully isolated, and if deemed advisable submitted to medical treatment until either pathognomonic indications of the malady have manifested themselves, or they are declared uninfected. The stable and other utensils used for suspected horses must not be used elsewhere until thoroughly cleansed and disinfected. Persons who have wounds, cracks or excoriations on their skin, and especially on the hands or face, should have nothing to do with a horse suspected of glanders or farcy. No remedial agent has yet been found to cure this terrible pestilence. In mild cases of farcy, tonics and stimulants have been found to palliate the symptoms for a while, but there is no cure; sooner or later the disease terminates fatally. No treatment should be undertaken without a full appreciation of the grave danger, and every effort made to prevent its spread to other

horses and man. In every country there are charlatans who pretend to cure glanders, but they know nothing of the disease and their reported successes have been dearly purchased in the spread of the plague and the consequent loss. Stables in which glandered animals have been kept should be thoroughly disinfected by having all partitions well scraped and washed with boiling water, the floor, if of wood, should be taken up and destroyed, at least six inches of the dirt beneath the floor should be removed and replaced with fresh earth. Mangers and feed boxes should be burned. The building should be fumigated and afterwards whitewashed with a mixture containing four ounces each of carbolic acid and chloride of lime to each gallon of whitewash.